Aquaponics Growing Fish & Plant Together by using IoT – A Survey

Snehal Phad[1]
1Student, MET's Bhujbal Knowledge City, Department of Information Technology, Nashik, India

Samiksha Patil[2]
2Student, MET's Bhujbal Knowledge City, Department of Information Technology, Nashik, India

Nikita Shirude[3]
3Student, MET's Bhujbal Knowledge City, Department of Information Technology, Nashik, India

Shubham Nagare[4]
4Student, MET's Bhujbal Knowledge City, Department of Information Technology, Nashik, India

Ratan Deokar[5]
5Asst.Professor, MET's Bhujbal Knowledge City, Department of Information Technology, Nashik, India

Abstract— In agriculture and water-based business farmers and business owners face problems with the scarcity of fertile land, extreme weather impacting agricultural production insufficient supply of water high cost of maintenance due to excessive dependency on manual processes difficulty in monitoring farm operations 24/7 insufficient information regarding ideal conditions for agriculture aquaponics proposed system is introduced - an Internet of Things and big data-enabled aquaponics and water monitoring system that builds the symbiotic relationship between plants and fishes thus enabling sustainable farming aquaponics is of food production technology combining fish farming with hydroponics vegetable growing in practice fish release feces in the water beneficial bacteria transformed these excrements into fertilizers for plants by consuming these fertilizers plants purify the water and make it suitable again for the fish smart right but water-based agriculture is very sensitive to pH level water temperature oxygen to nutrient levels thus farm owners deploy human resources to take vital readings every six hours as failure to proactively capture issues can severely damage the cyclical system to address these challenges proposed a smart aquaponics and aquaculture system which is simple long-lasting and has persistent connectivity based on wireless technology allows 24/7 remote monitoring of chemical compositions through accurate IOT sensors temperature, pH, electrical conductivity automates fish feeding and dosages, control water and air pump systems, monitors ambient air condition, temperature, humidity, educates aquaculture practitioners through simulations has built-in intuitive reporting that can be integrated into existing agricultural and greenhouse systems our indigenous system stimulates local and sustainable production contributing to a circular you reduce smart aquaponics can also be used in other water-based businesses like swimming pool aquaculture and water quality monitoring.